IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Brian Lo Bue, et al.	CONFIRMATION: 1104
SERIAL NO.:	09/452,285	
FILING DATE:	November 30, 1999	
TITLE:	Active Call Context Reconstruction For Primary/Backup Resource Manager Servers	
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ART UNIT:	2151	

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APPEAL BRIEF

Dear Sir:

This paper is in support of a Notice of Appeal filed May 23, 2006, from the Final Office Action dated December 19, 2005 to the Board of Patent Appeals and Interferences. Please consider the following.

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TABLE OF CONTENTS

REAL PARTY IN INTEREST

The real Party in interest is **Cisco Technology, Inc.**

RELATED APPEAL AND INTERFERENCES

None.

STATUS OF CLAIMS

Claims 1-4, 9-24, 26, 30-32, 52, 63-85, and 87-91 have been finally rejected and are on appeal.

Claims 5-8, 25, 27-29, 31-51, 53-62, and 86 were canceled before the final rejection.

STATUS OF AMENDMENTS

No amendments to the claims have been filed subsequent to the final rejection.

Please note that a typographical error in the status identifier of claim 1 was corrected in the response of May 11, 2006, but the claims after the final rejection remain unchanged.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention relates to a system, method, and apparatus for maintaining an ongoing call placed by a call-in user to a data communications network if a local server fails. In general, a call-in user seeking a connection to a network places a call across telephone lines (public switched telephone network: PSTN) or other media to a network access server (NAS) through a particular port of the NAS, such as a modem port or integrated services digital network (ISDN) port.[1] The NAS answers the call, becoming coupled to the call-in user, and sends the call type and dialed number information service (DNIS) information to a resource pool manager server (RPMS).[2] The RPMS determines whether to accept the call based on a call discrimination table and available resources, and if the call is accepted, the RPMS allows the call-in user to become connected to the network via the NAS.[3] The RPMS may provide resource management, dial services and call discrimination.[4] Conventionally, as shown in FIG. 2B, if a primary PRMS (local server) 72 fails, the NAS 78 "rolls over" or transfers resource management to a secondary PRMS (backup server) 76.[5] The backup PRMS 76, however, conventionally lacks information to reconstruct a call. Thus, the current (i.e., on-going) call from the call-in user is interrupted while the NAS 78 initiates a timing switch, and when the timing switch times out without call restoration at the backup PRMS 76, the current call is dropped from the NAS 78,[6] with a busy signal sent to the call-in user.[7] The call-in user then has to reinitiate a new call to the NAS 78. In order to avoid such disconnection of a call, the present invention provides a mechanism to

[1] Page 3, lines 6-8 of the specification.
[2] Page 3, lines 3-4 and 8-10 of the specification.
[3] Page 3, lines 10-24 of the specification.
[4] Page 3, lines 15-16 of the specification.
[5] Page 6, line 12 to page 7, line2 of the specification.
[6] Page 7, lines 3-7 of the specification.
[7] Page 7, lines 7-10 of the specification.

restore the interrupted call by enabling the backup server to reconstruct the call information (call context)[8] before the timing switch signals a time-out (and disconnects the call), without the need of continuous exchange of the call data between the local and backup servers.[9] It should be noted such continuous exchange of the date between the local and backup servers increases the traffic, consuming valuable communication bandwidth.[10]

Claim 1 in particular is directed to a backup server (such as a backup RPMS 136 in FIG. 3) which enables a data communications network to recover from a failure of a local server (such as a local RPMS 124 in FIG. 3). As shown in FIG. 3, the data communications network includes a network access server (NAS) 120 which couples a call placed from a call-in user 116 to the data communications network (also see FIG. 2). The NAS 120 has a memory associated therewith.[11] The backup server includes an information packet receiver and a parser (the subroutine 186 running on the backup server). The information packet receiver is responsive to the failure of the local server, and receives an information packet from the NAS' memory.[12] The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails.[13] For example, the call information includes server state attribute (SSA) which is a snapshot of the server's active call data as the call moves through its stages until the call is terminated.[14] The parser then reconstructs the call information from the received information packet such that the backup server maintains the ongoing call to the data communications network. For example,

[8] Page 8, lines 4-5 of the specification.
[9] Page 11, lines 7-9, and page 12, lines 7-9 of the specification.
[10] Page 7, lines 10-13 of the specification.
[11] Page 10, lines 17-23, and page 12, lines 4-5 of the specification.
[12] Page 12, lines 10-11 and 18 of the specification.
[13] Page 11,line 21 to page 12, line 4 of the specification.
[14] Page 12, lines 12-14 of the specification. This feature is recited in claim 2.

once all data fields for task values are completed, the attribute information for the on-going call becomes available and the call is resumed by the backup server.[15] Thus, in accordance with the invention, the call information stored in the memory associated with the NAS enables the backup server to continue processing the call in place of the failed local server without the need for the local server to continuously exchange the call data with the backup server.[16]

Claim 9 in particular is directed to a local server (such as a local RPMS 124) which enables a data communications network to recover from a failure of the local sever. The data communications network includes a backup server (such as a backup RPMS 136) and a network access server (NAS) 120.[17] The NAS 120 couples a call placed from a call-in user 116 to the data communications network. The NAS has a memory associated therewith. The local server has an encoder and a sender. The encoder generates an information packet. The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails.[18] The encoder generates (or "encodes") a data string which includes an aggregation of data elements in a specific sequence (i.e., server-state attribute: SSA) as an information packet.[19] The sender transmits the information packet from the encoder to the memory associated with the NAS[20], and the information packet is stored in the memory[21] such that it is available to the backup server if the local server fails.

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[15] Page 17, line 22 to page 18, line 11 of the specification, FIG. 5.
[16] Page 12, lines 6-9 of the specification.
[17] See FIG. 3
[18] Page 11,line 21 to page 12, line 4 of the specification.
[19] *Id.*
[20] Page 12, lines 3-5 of the specification.
[21] Page 11, lines 18-20 of the specification.

Claim 13 in particular is directed to a system for maintaining a call placed by a call-in user to a data communications network. As shown in FIG. 3, for example, the network includes a network access server (NAS) 120 for coupling the call placed by the call-in user 116 to the network, a local server 124 servicing the call, a backup server 140, and a failure detector[22] for detecting a failure of the local server 124. The system includes a memory associated with the NAS, an encoder associated with the local server for generating an information packet,[23] a sender for transmitting the information packet from the encoder to the memory of the NAS where the information packet is stored,[24] a call coupler[25] associated with the NAS, an information packet forwarder, and a parser associated with the backup server. As described above, the information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails. If the local server does not fail, the call coupler couples the call to the local server.[26] If the local server fails, the call coupler couples the call to the backup server, and the information packet forwarder transmits the information packet from the NAS' memory to the backup server.[27] Then, the parser of the backup server reconstructs the call information from the information packet such that the backup server can recover the call information and serve the call without disconnecting the user from the network.[28]

Claim 17 in particular is directed to a network access server (NAS) for maintaining a call placed from a call-in user to a data communications network. The data communications network

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[22] Page 18, line 21 of the specification.
[23] Page 11,line 21 to page 12, line 4 of the specification.
[24] *Id.*
[25] Page 18, line 22 to page 19, line 3 of the specification
[26] Page 18, lines 22-24 of the specification.
[27] Page 19, lines 1-6 of the specification.
[28] Page 19, lines 6-8 of the specification.

includes, as shown in FIG. 3, a local server 124 for servicing the call and a backup server 136 capable of servicing the call. The NAS includes a receiver for receiving an information packet from the local server,[29] an associated memory for storing the information packet,[30] a failure detector for determining if a failure of the local server has occurred,[31] and a sender for transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.[32] The information packet is associated with an ongoing call placed to the NAS by the call-in user, and contains context data of the ongoing call for maintaining connection of the ongoing call.

Claim 20 in particular is directed to a server backup system for maintaining an ongoing call placed by a call-in user to a network. The network includes, as shown in FIG. 3, a server 124 servicing the call, a network access server (NAS) 120 coupling the call from the call-in user 116 to the server, and a memory associated with the NAS 120. The system includes a backup server 136 connected to the network, which is capable of servicing the call, an encoder associated with the server 124, a sender associated with the server 124, a call coupler associated with the NAS, an information packet requester associated with the backup server 136, and a parser associated with the backup server 136. The encoder generates an information packet and the sender transmits the information packet to the NAS' memory which stores the information packet.[33] The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call. If the server fails, the call coupler rolls over the call to the backup server. The information packet

[29] Page 18, lines 19-20 of the specification.
[30] *Id.*
[31] Page 18, lines 21-22 of the specification.
[32] Page 19, lines 1-6 of the specification.
[33] Page 11,line 21 to page 12, line 6 of the specification.

requester requests the information packet from the NAS' memory in response to the call received from the NAS, if the call information is not available to the backup server.[34] Then, the parser reconstructs the call information from the information packet.[35]

Claim 30 in particular is directed to a server backup system for maintaining an ongoing call placed by a call-in user to a network. The system includes, as shown in FIG. 3, a first server (local server 124) connected to the network for servicing the call, a second server (backup server 136) connected to the network for servicing the call if the first server fails, and a network access server (NAS) 120 for coupling the call from the user 116 to the first server 124, and for coupling the call to the second server 136 if the first server fails.[36] The NAS includes a memory associated therewith. The first server includes an encoder and a sender, similarly to the local server recited in claim 9. The encoder generates an information packet, and the sender transmits the information packet from the encoder to the NAS' memory which stores the information packet.[37] The information packet is associated with an ongoing call placed the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the first server fails. The second server includes an information packet requester and a parser, similarly to the backup server recited in claim 20. The information packet requester requests the information packet from the memory in response to the call received from the NAS, if the call information is not available to the second server.[38] The parser reconstructs the call information from the information packet.[39]

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[34] Page 19, lines 3-5 of the specification.
[35] Page 19, lines 6-7 of the specification.
[36] Page 14, lines 15-22 of the specification.
[37] Page 11,line 21 to page 12, line 4 of the specification.
[38] Page 19, lines 3-5 of the specification.
[39] Page 19, lines 6-8 of the specification.

Claim 63 in particular is directed to a method performed by a backup server for enabling a data communications network to recover from a local server failure. The data communications network includes, as shown in FIG. 3, a network access server (NAS) 120 for coupling a call placed from a call-in user 116 to the data communications network. The NAS has a memory associated therewith. An information packet is received from the memory associated with the NAS in response to the local server failure.[40] The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails. The call information is then reconstructed from the information packet, as shown in FIG. 5, so as to maintain the ongoing call to the data communications network.[41]

Claim 66 in particular is directed to a method performed by a local server for enabling a data communications network to recover from a failure of the local sever. The data communications network includes, as shown in FIG. 3, a backup server 136, and a network access server (NAS) 120. The NAS couples a call placed from a call-in user 116 to the data communications network, and has a memory associated therewith. An information packet is generated, and then transmitted to the memory associated with the NAS. The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails. The information packet is stored in the NAS' memory so as to be available to the backup server if the local server fails.

[40] Page 16, lines 20-21 of the specification.
[41] Page 17, line 7 to page 18, line 11 of the specification.

Claim 68 in particular is directed to a method for maintaining a call placed by a call-in user to a data communications network. The network includes, as shown in FIG. 3, a network access server (NAS) 120 for coupling the call to the network, a memory associated to the NAS, a local server 124 servicing the call, a backup server 136, and a failure detector for detecting a failure of the local server.[42] An information packet is generated, transmitted to the memory associated with the NAS, and stored in the memory. The information packet is associated with an ongoing call placed by the call-in user 116 via the NAS 120, and contains call information of an ongoing call for maintaining connection of the call if the local server fails. If the local server does not fail, the call is coupled to the local server. If the local server fails, the call is coupled to the backup server, and the information packet is transmitted from the memory associated with NAS to the backup server. The call information is reconstructed, at the backup server, from the information packet such that the backup server can recover the call context and serve the ongoing call without disconnecting the user from the network.

Claim 69 in particular is directed to a method performed by a network access server (NAS) for maintaining a call placed from a call-in user to a data communications network. The data communications network includes, as shown in FIG. 3, a local server 124 for servicing the call, and a backup server 136 capable of servicing the call. An information packet is received from the local server and stored in a memory associated with the NAS. The information packet associated with an ongoing call placed by the call-in user via the NAS, and contains call information of the ongoing call for maintaining connection of the ongoing call if the local server fails. If it is determined that a failure of the local server has occurred, the information packet is transmitted from the memory associated with the NAS to the backup server.

[42] Page 18, line 21 of the specification.

Claim 71 in particular is directed to a program storage device readable by a machine, tangibly embodying a program[43] of instructions executable by the machine to perform the method reited in claim 63.

Claim 74 in particular is directed to a program storage device readable by a machine, tangibly embodying a program[44] of instructions executable by the machine to perform the method recited in claim 66.

Claim 76 in particular is directed to a program storage device readable by a machine, tangibly embodying a program[45] of instructions executable by the machine to perform the method recited in claim 69.

Claim 78 in particular is directed to an apparatus for enabling a data communications network to recover from a local server failure, which performs the method recited in claim 63, and thus the apparatus corresponds to a backup server such as a RPMS 136 (FIG. 3). As shown in FIG. 3, the data communications network includes a network access server (NAS) 120 for coupling a call placed from a call-in user to the data communications network. The NAS has a memory associated therewith. The apparatus includes means for receiving an information packet from the memory associated with the NAS in response to the local server failure, and means for reconstructing the call information from the information packet so as to maintain the ongoing call to the data communications network. These means correspond to the subroutine 186 (FIG.

[43] Page 1, line25 of the specification.
[44] *Id.*
[45] *Id.*

5) running on the backup server. The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails.

Claim 81 in particular is directed to an apparatus for enabling a data communications network to recover from a failure of said local sever, which performs the method recited in claim 66, and thus the apparatus corresponds to a local server such as a RPMS 124 (FIG. 3). The data communications network includes, as shown in FIG. 3, a backup server 136 and a network access server (NAS) 120. The NAS couples a call placed from a call-in user 116 to the data communications network, and the NAS has a memory associated therewith. The apparatus includes means for generating an information packet (box 216 in FIG. 6), and means for transmitting the information packet to the memory associated with the NAS (box 218 in FIG. 6). The information packet is stored in the memory associated with the NAS such as it is available to the backup server if the local server fails. The information packet is associated with an ongoing call placed by the call-in user via the NAS, and contains call information for maintaining connection of the ongoing call if the local server fails.

Claim 83 in particular is directed to an apparatus for maintaining a call placed from a call-in user to a data communications network, which performs the method recited in claim 69, and thus the apparatus corresponds to a network access server (NAS) 120 (FIG. 3). The data communications network includes, as shown in FIG. 3, a local server 124 for servicing the call, and a backup server 136 capable of servicing the call. The apparatus includes means for receiving an information packet from the local server (box 220 in FIG. 6), means for storing the information packet in a memory associated with the apparatus (box 220 in FIG. 6), means for

determining if a failure of the local server has occurred (box 222 in FIG. 6), and means for transmitting the information packet from the associated memory to the backup server if the local server failure has occurred (box 232 in FIG. 6). The information packet is associated with an ongoing call placed by the call-in user via said apparatus, and contains call information of the ongoing call for maintaining connection of the ongoing call if the local server fails.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-4, 9-23, 26, 30-32, 52, 63-85 and 87-91 are unpatentable under 35 U.S.C. §103(a) over Brendel et al. (U.S. Pat. No. 5,774,660, hereinafter "Brendel") in view of Lamarque et al. (U.S. Pat. No. 6,690,651, hereinafter "Lamarque"), among which claims 1, 9, 13, 17, 20, 30, 63, 66, 68-69, 71, 74, 76, 78, 81 and 83 are independent claims.

Whether claims 24 and 32 are unpatentable under 35 U.S.C. §103(a) over Brendel and Lamarque as applied to claims 20-23 and 30-31, and further in view of Cisco Systems (hereinafter "Cisco"), Network Wide Solution Managers Providers to Maximize Revenue form Dial VPN, April 5, 1999.

ARGUMENT

I. Whether claims 1-4, 9-24, 26, 30-32, 52, 63-85 and 87-91 are unpatentable under 35 U.S.C. §103(a) over Brendel et al. (U.S. Pat. No. 5,774,660) in view of Lamarque et al. (U.S. Pat. No. 6,690,651).

A. Claims 1-4 and 85, claims 63-65, claims 71-73, and claims 78-80

Claim 1, from which claims 2-4 and 85 depend, defines a backup server for enabling a data communications network to recover from a local server failure, the data communications network including a network access server (NAS) for coupling a call placed from a call-in user by calling-in to the data communications network, the NAS having a memory associated therewith. The claimed backup server comprises (a) an information packet receiver responsive to the local server failure, the information packet receiver receiving from the memory associated with the NAS an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information of the ongoing call for maintaining connection of the ongoing call if the local server fails, and (b) a parser for reconstructing the call information from the information packet such that the backup server maintains the ongoing call to the data communications network, as recited in claim 1.

In the Final Office Action, the Examiner alleges that the elements of the presently claimed invention are disclosed in Brendel except that Brendel does not teach a user's placing a

request by calling in.[46] The Examiner equates Brendel's backup load balancer **70'**[47] with the claimed network access server (NAS), Brendel's load balancer **70**[48] with the claimed backup server, Brendel's individual servers **56**, **51**, and **52**[49] with the claimed local server, and Brendel's client browser **10**[50] with the claimed user (but not "calling-in" user).[51] More specifically, the Examiner alleges that Brendel's "keeping track requests to network servers" teaches the claimed backup server's information packet receiver, citing Brendel, abstract, FIGS. 6, 8, and 19, column 9, lines 18-64, column 10, lines 38-65, and column 19, lines 1-45,[52] and that Brendel's column 11, line 27 to column 12, line 45 teaches the claimed backup server's parser.[53]

The Examiner further contends that, in the Final Office Action and in the subsequent Advisory Actions as well, Lamarque teaches "a user placing a request by calling in" by a user (IP terminal) **122** in FIG. 1 thereof which "initiate a call at a terminal to communicated with the servers and networks, citing column 3, line 2 to column 4, line 24 thereof, and that it would have been obvious to utilize Lamarque's teachings in Brendel's system "to request data information through a network because it would have enabled user to bypass long distance carriers and their permanent usage and to run voice traffic over the Internet,"[54] citing column 1, lines 24-67 of Lamarque.[55] In addition, the Examiner alleges that the claimed limitation of "an on-going call placed by the call-in user" is the same as "a user's placing request by calling in" because both

[46] Final Office Action, page 3, lines 10 to page 4, line 6.
[47] Brendel, FIG. 19 and column 9, lines 9-10.
[48] Brendel, FIGS. 8 and 19.
[49] Brendel, FIGS. 6, 8, and 19.
[50] *Id.*
[51] Final Office Action, page 3, line 10 to page 4, line 6.
[52] *Id.*, page 3, line 8.
[53] *Id.*, page 4, lines 3-5.
[54] *Id.*, page 4, lines 7-13.
[55] Advisory Action of June 20, 2006, Continuation Sheet, lines 13-16.

"directed to disclose an user placing a call for information/request" and "[a] user can not call in for nothing in particular."[56]

The Applicants respectfully disagree for the reasons set forth below.

According to M.P.E.P. § 2143,

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

[56] *Id.*, lines 2-5.

1. Regarding Brendel

Brendel relates to a world-wide-web server with a resource-based load balancer. As shown in FIG. 19 thereof, Brendel's system includes a client browser **10** (the alleged call-in user), the Internet **66**, and a local LAN **144**. The local LAN **144** is connected to the Internet **66** via connection routers **140** and **146** through respective Internet connections **142** and **148**.[57] Since FIG. 19 is the only figure in Brendel showing a backup load balancer **70'** (the alleged NAS), Applicant's following discussions will mainly refer to Brendel's FIG. 19 and description related thereto.

(1) Brendel's backup load balancer **70'** does not disclose or teach the claimed NAS.

The claimed NAS couples a call placed from a call-in user to the data communications network, as recited in claim 1. On the other hand, Brendel describes the backup load balancer **70'** as follows:[58]

> FIG. 19 is a diagram of a fault-tolerant web site with a back-up load balancer and dual Internet connections. Browser **10** sends requests through Internet **66** with a virtual IP address for the whole web site. Incoming packets with the virtual IP address are routed to load balancer **70** over local LAN **144**. Local LAN **144** may contain routers, switches, and hubs when servers are located on separate network nodes. Local LAN **144** connects to Internet **66** through Internet connection **142** which directly connects to Internet connection router **140**, and through Internet connection **148**, which is connected to Internet connection router **146**. (Emphasis added)

As clearly illustrated in FIG. 19 of Brendel, the backup load balancer **70'** (located on the server **56**), as well as the load balancer **70** located on server **55**, and other servers **51** and **52**, is

[57] See also Brendel, column 18, lines 49-54.
[58] Brendel, column 18, lines 44-54.

on the local LAN **144**, and receives any user requests from the client **10** through the Internet **66** (the alleged communication network) via a connection router **140** or **146**. That is, the servers in the web site (i.e., the local LAN **144**) are a destination to which the client browser **10** sends a request for information across the Internet **66**. Thus, the backup load balancer **70'** (the alleged NAS) located on the server **55** receives a user's request from the communications network via the router **140** or **146** over the local LAN **144**.[59] That is, in Brendel, it is the Internet **60** and the local LAN **144** (allegedly the communications network) that couples a request (the alleged call placed by the user) from the user **10** to the backup load balancer **70'** (the alleged NAS). This is completely opposite to claim 1, which recites the NAS coupling a call from the call-in user to the communications network. In addition, the only functions of the backup load balancer **70'** described in Brendel are to monitor the primary load balancer **70** and to take over the operation should primary load balancer **70** fail.[60] There is no indication or suggestion in Brendel that the backup load balancer **70'** provides the client **10** with access to any network, the Internet or LAN.

Therefore, Brendel fails to disclose or teach the claimed NAS by the backup load balancer **70'**.

[59] Brendel, column 18, lines 48-49.
[60] Brendel, column 19, lines 9-14.

(2) Brendel's load balancer fails to disclose or teach the claimed backup server's information packet receiver.

In Brendel, the load balancer transfers the condition or state of the connection ("TCP state") (the alleged information packet) to the assigned server.[61] The assigned server in Brendel is a server currently processing the user request, and thus the assigned server allegedly corresponds the claimed local server. Thus, in Brendel, the load balancer (the alleged backup server) is sending the TCP state (the alleged information packet) to the assigned server (the alleged local server). Accordingly, Brendel fails to teach or suggest that the load balancer **70** (the alleged backup server having the information packet receiver) receives the TCP state (the alleged information packet) from the backup load balancer **70'** (the alleged NAS or the memory thereof).

In addition, in Brendel, the load balancer **70** (the alleged backup server) is not responsive to the local server failure. It is the backup load balancer **70'** (the alleged NAS) that monitors the primary load balancer **70** and takes over the operation should primary load balancer **70** fail.[62]

Accordingly, Brendel does not disclose or teach the claimed backup server's information packet receiver responsive to the local server failure, the information packet receiver receiving from the memory associated with the NAS an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information of the

[61] Brendel, column 12, lines 38-42.
[62] Brendel, column 19, lines 9-14.

ongoing call for maintaining connection of the ongoing call if the local server fails, as recited in claim 1.

Since Brendel fails to disclose or teach the clamed NAS and the claimed information packet receiver, as discussed in (1) and (2) above, Brendel, whether considered alone or combined with or modified by Lamarque, does not teach or suggest the claimed backup server as recited in claim 1.

(3) Brendel fails to disclose or teach the claimed information packet associated with an ongoing call placed by a call-in user, since "a user's placing request by calling in" is different from the claimed limitation of "an on-going call placed by the call-in user."

As the Examiner admitted,[63] Brendel fails to disclose that a call-in user placing a call by calling in. However, the Examiner alleges that the claimed limitation of "an on-going call placed by the call-in user" is the same as "a user's placing request by calling in" because both "directed to disclose an user placing a call for information/request" and "[a] user can not call in for nothing in particular. The Examiner's allegation is not correct for the following reasons.

Placing a call in order to be coupled to a data communications network is different from placing a request for information from a server (web site) with a specific URL. As is well known to those of ordinary skill in the art, a call-in user must first "call in" or "dial up" via a telephone line and the like to a nearby network access server to establish a connection to the communication network via that network access server. Then, after such a connection is

[63] Final Office Action, page 4, line 6.

established ("connection of the on-going call"), the call-in user is able to place a request for information over such an established connection by specifying the location of the information (for example, a unique URL) on the communications network. Using the established connection to the communications network via a network access server, the call-in user can send different requests to different web cites (servers) on the communications network, without hanging up and then placing a different call designating a different web site. That is, many requests for different information from different locations on the communications network can be placed over the same established connection via the network access server. Thus, contrary to the Examiner's allegation, a call-in user can call in without requesting specific information in order to establish a connection to the communication network.

It should be noted that the claim language clearly recites that the information packet contains "call information for maintaining connection of the ongoing call," not "request information," or "maintaining request." Furthermore, the present specification describes "[a] call-in user seeking a connection to the network may place a call across telephone line or other media to a NAS.... [t]he NAS answers the call, becoming coupled to the user, and send the call type and dialed number information (DNIS) information to RPMS..."[64]

"All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). The broadest reasonable interpretation of the claims must also be consistent with the

[64] Page 3, lines 6-10 of the specification.

interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999).[65]

2. Regarding Lamarque

Lamarque relates to the Internet telephony, also referred to as "voice over IP" (VoIP), routing a voice call associated with a user.[66] Thus, Lamarque's system is not for a data request (web-access) or data transmission over the Internet. In conventional telephone (voice) calls, a long distance call must be directly connected from a caller through long distance carrier(s) to a receiver. However, if VoIP is used, as shown in FIG. 1 of Lamarque, a caller (user) can make a local call to a local Internet access point (gateway **114**) via the telephone switch system **110** if the caller is a dial-up user **124** or legacy phone **126**, or a caller can access the Internet from a LAN **106** if the caller is an IP terminal **122** or an end user **124** connected to the LAN **106**. By using VoIP and sending the voice message over the Internet or WAN **104**, the caller in a local area **130** can communicate with the receiver **132**, **134**, or **138** in a remote area **140**, as shown in FIG. 1 of Lamarque, bypassing long distance carriers (traditional public switch network: PSTN **102**), and thus avoid their permanent long-distance usage rate.[67]

[65] The Board's construction of the claim limitation "restore hair growth" as requiring the hair to be returned to its original state was held to be an incorrect interpretation of the limitation. The court held that, consistent with applicant's disclosure and the disclosure of three patents from analogous arts using the same phrase to require only some increase in hair growth, one of ordinary skill would construe "restore hair growth" to mean that the claimed method increases the amount of hair grown on the scalp, but does not necessarily produce a full head of hair.
[66] Lamarque, Abstract.
[67] Lamarque, column 1, lines 24-31, also see column 2, line 64 to column 3, line 52.

3. Regarding Combination of Brendel and Lamarque

As the Examiner correctly noted, Brendel's request for data information is not a call-in user's call to the NAS. However, as mentioned above, the Examiner alleges that Lamarque teaches "a user placing a request by calling in," and that it would have been obvious to utilize Lamarque's teachings in Brendel's system "to request data information through a network because it would have enabled user to bypass long distance carriers and their permanent usage and to run voice traffic over the Internet."[68]

(1) The alleged combination of Brendel and Lamarque is not obvious because it would render the prior art unsatisfactory for its intended purpose.

The Examiner alleges that Lamarque's IP terminal **122** "initiate[s] a call at a terminal to communicated with the servers and networks." It should be noted, however, that Lamarque's "call" is a voice call to a specific receiver at a remote location **140**, and not a call to the data communications network such as WAN **104** or the Internet to establish a connection thereto. Furthermore, the "call" made by the IP terminal **122**' is actually not a call-in user's call because the IP terminal **122** is already connected to the LAN **106** to the WAN **104**, as shown in FIG. 1 of Lamarque. That is, the IP terminal **122** (the alleged call-in user) does not have to "call-in" or "dial-up" to a telephone system **110** and/or the gateways **128, 114** so as to be coupled to the WAN **104** (the alleged communication network). Thus, modifying Brendel's client **10** into Lamarque's IP terminal **122** does not create a call-in user placing a call to the data communication network in Brendel.

[68] Final Office Action, page 4, lines 7-13, also in Advisory Actions of March 10, 2006, and June 20, 2006.

If Brendel's client browser **10** should still be modified to Lamaruqe's IP terminal **122**, it would make a voice phone call through the Internet to the web cite (LAN) **144**. Such a modified system is not operable, because Brendel's backup load balancer **70'** (the alleged NAS), as well as other web recourse servers **51, 52, 55, 56** or the primary load balancer **70**, cannot answer a voice phone call. Brendel's backup load balancer **70'** (the alleged NAS) is neither able to route or transmit a voice phone call to any designated receiver, nor can the resource servers **51, 52, 55, 56** retrieve any information in response to a voice call. Thus, the alleged combination of Brendel and Lamarque does not work for intended purpose of either Brendel or Lamarque. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.[69]

(2) The alleged combination of Brendel and Lamarque is not obvious because Lamarque's alleged motivation teaches away form the alleged modification.

Furthermore, suppose Brendel's client browser **10** is modified to Lamarque's alleged "call-in" user **122** (or more suitably end user PC **124**) making a request for information by calling in, instead of a voice phone call. Then, in accordance with Lamarque's suggested motivation to "bypass long distance carriers and their permanent usage and to run voice traffic over the Internet" as the Examiner alleges, the thus modified Brendel's alleged "call-in" client **10** would place a local call (i.e., dial up) to a nearby network access point (the gateway **128** or telephone switch **110** as shown in FIG. 1 of Lamarque, not shown in FIG. 19 of Brendel) to connect to the Internet **66** in order to send a request for information to the web cite (LAN) **144**.

[69] *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

That is, the allegedly modified call-in client **10**'s request would have communicated with the destination web site **144** across the Internet **66** (corresponding to the WAN **104** in Lamarque) through the internet connections **142, 148**, in the same manner as unmodified Brendel (see FIG. 19 of Brendel). This is because, if the modified "call-in" client **10** should place a call directly to the backup load balancer **70'** (the alleged NAS) on the LAN **144** (which corresponds to the remote LAN **108** of Lamarque), it would be a long-distance call to a remote destination, negating all of the motivation and advantages of Lamarque (although the backup load balancer **70'** is not capable of directly receiving any phone call).

Accordingly, Lamarque's alleged motivation "to bypass long distance carriers and their permanent usage rates" does not provide any advantages or desirability to modify Brendel, but actually teaches away from modifying Brendel's client browser **10** to "call-in" to the backup load balancer **70'** (the alleged NAS), contrary to the Examiner's allegation.

It should also be noted that Brendel's information request system as shown in FIG. 19 thereof does not involve any long distance call, because the data transmission between the client browser **10** and the web cite (LAN) **144** is across the Internet **66** through connection routers **140** and **146**, (i.e., "Data" over IP) which corresponds to the data communication between the IP terminal **122** and the database server **118** through LAN **106** and WAN **104**, without using the PSTN **102**, as shown in FIG. 1 of Lamarque. The alleged "bypassing long distance carriers and their permanent usage" have already been done in Brendel, and thus does not provide any advantage to further modify Brendel. As discussed above, running "the voice traffic over the Internet" in the Brendel's system renders the modified system unworkable.

Consequently, (i) Brendel, whether considered alone or combined with teaching of Lamarque, does not teach or suggest the claimed backup server as recited in claim 1, (ii) the alleged combination is not obvious because the prior art fails to provide required motivation for combination, and (iii) even if Brendel and Lamarque are allegedly combined, the modified system is inoperable, rendering the alleged combination unobvious.

Accordingly, it is respectfully requested that the rejection of claims based on Brendel and Lamarque be withdrawn.

Other Claims

Claim 63, from which claims 64-65 depend, defines a method performed by a backup server, and includes, among others, substantially the same distinctive features of the NAS and the information packet receiver as discussed above in claim 1. Similarly, claim 71, from which claims 72-73 depend, defines a corresponding program storage device, and claim 78, from which claims 79-80 depend, defines a corresponding apparatus in the "means plus function" format. Accordingly, the discussions above are equally applicable to these claims.

Accordingly, it is respectfully requested that the rejection of claims based on Brendel and Lamarque be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

B. Claims 9-12 and 87, claims 66-67, claims 74-75, and claims 81-82

Claim 9, from which claims 10-12 and 87 depend, defines a local server for enabling a data communications network to recover from a failure of said local sever, the data communications network including a backup server and a network access server (NAS), the NAS coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith. The claimed local server comprises (a) an encoder for generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails, and (b) a sender for transmitting the information packet from the encoder to the memory associated with the NAS, the information packet being stored in the memory to be available to the backup server if the local server fails, as recited in claim 9.

As discussed above in detail, Brendel fails teach or suggest the claimed NAS. Also, as discussed above, in Brendel, the load balancer (the alleged backup server) sends the TCP state (the alleged information packet) to the assigned server (the alleged local server).[70] Accordingly, in Brendel, the assigned server (the alleged local server) receives the TCP state (the alleged information packet), does not generate the TCP state (the alleged information packet) and transmit to the backup load balancer **70'** (the alleged NAS), as recited in claim 9. Therefore, Brendel fails to teach or suggest the claimed local server including the encoder and the sender. All other argument regarding Brendel, Lamarque, and the alleged combination thereof are also

[70] Brendel, column 12, lines 38-42.

applicable here. Accordingly, Brendel, whether considered alone or combined with or modified by Lamarque, does not teach or suggest the claimed local server as recited in claim 9.

Other Claims

Claim 66, from which claim 67 depends, defines a method performed by a local server, and includes, among others, substantially the same distinctive features of the NAS, the encoder and the sender as discussed above in claim 9. Similarly, claim 74, from which claim 75 depends, defines a corresponding program storage device, and claim 81, from which claim 82 depends, defines a corresponding apparatus in the "means plus function" format. Accordingly, the discussions above are equally applicable to these claims.

Accordingly, it is respectfully requested that the rejection of claims based on Brendel and Lamarque be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

C. Claims 13-16 and 88, claims 20-24, 26 and 90, claims 30-32 and 91, and claim 68

Claim 13, from which claims 14-16 and 88 depend, defines a system for maintaining a call placed by a call-in user to a data communications network. The network includes a network access server (NAS) for coupling the call to the network, a local server servicing the call, a backup server, and a failure detector for detecting a failure of the local server. The claimed system comprising (a) a memory associated to the NAS, (b) an encoder associated with the local

server for generating an information packet associated with an ongoing call placed by the call-in user via the NAS, wherein the information packet containing call information for maintaining connection of the ongoing call if the local server fails, (c) a sender for transmitting the information packet from said encoder to said memory associated with the NAS, the information packet being stored in said memory, (d) a call coupler associated with the NAS for coupling the call to the local server if the local server does not fail, and for coupling the call to the backup server if the local server fails, (e) an information packet forwarder for transmitting the information packet from said associated memory to the backup server if the local server fails, and (f) a parser associated with the backup server for reconstructing the call information from the information packet such that the backup server can recover the call information and serve the call without disconnecting the user from the network.

As discussed above in detail, Brendel fails teach or suggests the claimed NAS. Also, as discussed above, in Brendel, the load balancer (the alleged backup server) sends the TCP state (the alleged information packet) to the assigned server (the alleged local server).[71] Accordingly, the assigned server (the alleged local server) receives the TCP state (the alleged information packet), does not generates the TCP state (the alleged information packet) and transmit to the backup load balancer **70'** (the alleged NAS). Therefore, Brendel does not teach or suggest any of the claimed encoder associated with the local server, the claimed sender transmitting the information packet to the NAS, the claimed coupler associated with NAS, and the information forwarder, as recited in claim 13.

[71] Brendel, column 12, lines 38-42.

All other argument regarding Brendel, Lamarque, and the alleged combination thereof are also applicable here. Accordingly, Brendel, whether considered alone or combined with or modified by Lamarque, does not teach or suggest the claimed local server as recited in claim 13.

Other Claims

Claim 20, from which claims 21-24, 26 and 90 depend, defines a similar system including, among others, an encoder, a sender, a call coupler, and the same features of NAS, as discussed in claim 13. Similarly, claims 30, from which claim 31-32 and 91 depend, includes, among others, the similar features of the NAS, the local server, and the backup server, and claim 68 defines a method corresponding to claim 13. Accordingly, the discussions above are equally applicable to these claims.

Accordingly, it is respectfully requested that the rejection of claims based on Brendel and Lamarque be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

D. Claims 17-19, 52 and 89, claims 69-70, claims 76-77, and claims 83-84

Claim 17, form which claims 18-19, 52 and 89 depend, defines a network access server (NAS) for maintaining a call placed from a call-in user to a data communications network, the data communications network including a local server for servicing the call, and a backup server capable of servicing the call. The claimed NAS comprises (a) a receiver for receiving an

information packet from the local server, the information packet associated with an ongoing call placed to the NAS by the call-in user, the information packet containing context data of the ongoing call for maintaining connection of the ongoing call, (b) an associated memory for storing the information packet, (c) a failure detector for determining if a failure of the local server has occurred, and (d) a sender for transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.

As discussed above in detail, in Brendel, the load balancer (the alleged backup server) sends the TCP state (the alleged information packet) to the assigned server (the alleged local server),[72] and thus the backup load balancer **70'** (the alleged NAS) does not receive the TCP state (the alleged information packet) or send the TCP state to the load balancer (the alleged backup server) upon local server failure, as recited in claim 17. Therefore, Brendel fails to teach or suggest that claimed NAS including, among others, the receiver and the sender. All other argument regarding Brendel, Lamarque, and the alleged combination thereof are also applicable here. Accordingly, Brendel, whether considered alone or combined with or modified by Lamarque, does not teach or suggest the claimed NAS as recited in claim 17.

Other Claims

Claim 69, from which claim 70 depends, defines a method performed by a NAS, and includes, among others, substantially the same distinctive features of the receiver and the sender as discussed above in claim 17. Similarly, claim 76, from which claim 77 depends, defines a corresponding program storage device, and claim 83, from which claim 84 depends, defines a

[72] Brendel, column 12, lines 38-42.

corresponding apparatus in the "means plus function" format. Accordingly, the discussions above are equally applicable to these claims.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

II. Whether claims 24 and 32 are unpatentable under 35 U.S.C. §103(a) over Brendel and Lamarque as applied to claims 20-23 and 30-31, and further in view of Cisco Systems (hereinafter "Cisco"), Network Wide Solution Managers Providers to Maximize Revenue form Dial VPN, April 5, 1999.

Claims 24 and 32 are dependent claims whose limitations include those of the base claims 20 and 30, respectively, discussed above. Accordingly, Applicant respectfully submits that claims 24 and 32 are allowable for at least the same reasons, and withdrawal of their rejection under 35 U.S.C. § 103(a) based on Brendel and Lamarque Beser is respectfully requested.

CLAIMS APPENDIX

1. A backup server for enabling a data communications network to recover from a local server failure, the data communications network including a network access server (NAS) for coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said backup server comprising:

an information packet receiver responsive to the local server failure, the information packet receiver receiving from the memory associated with the NAS an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

a parser for reconstructing the call information from the information packet, such that the backup server maintains the ongoing call to the data communications network.

2. A backup server according to claim 1, wherein the call information comprises server-state attribute (SSA) having an attribute/value pair that can be parsed into a plurality of separate data entries.

3. A backup server according to claim 1, wherein the information packet further comprises a plurality of aggregated data elements from a call attribute table.

4. A backup server according to claim 3, wherein the plurality of aggregated data elements are separated by said parser for reconstructing the call information from the information packet.

9. A local server for enabling a data communications network to recover from a failure of said local sever, the data communications network including a backup server and a network access server (NAS), the NAS coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said local server comprising:

an encoder for generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

a sender for transmitting the information packet from the encoder to the memory associated with the NAS, the information packet being stored in the memory to be available to the backup server if the local server fails.

10. A local server according to claim 9, wherein the call information comprises server-state attribute (SSA) having an attribute/value pair that can be parsed into a plurality of separate data entries.

11. A local server according to claim 9, wherein the information packet further comprises a plurality of aggregated data elements from a call attribute table.

12. A local server according to claim 11, wherein the plurality of aggregated data elements are separated by said parser for reconstructing the call information from the information packet.

13. A system for maintaining a call placed by a call-in user to a data communications network, the network including a network access server (NAS) for coupling the call to the

network, a local server servicing the call, a backup server, and a failure detector for detecting a failure of the local server, the system comprising:

a memory associated to the NAS;

an encoder associated with the local server for generating an information packet associated with an ongoing call placed by the call-in user via the NAS, wherein the information packet containing call information for maintaining connection of the ongoing call if the local server fails;

a sender for transmitting the information packet from said encoder to said memory associated with the NAS, the information packet being stored in said memory;

a call coupler associated with the NAS for coupling the call to the local server if the local server does not fail, and for coupling the call to the backup server if the local server fails;

an information packet forwarder for transmitting the information packet from said associated memory to the backup server if the local server fails; and

a parser associated with the backup server for reconstructing the call information from the information packet such that the backup server can recover the call information and serve the call without disconnecting the user from the network.

14. A system according to claim 13, wherein said information packet forwarder comprises:

an information packet requester associated with the backup server for requesting the information packet from said memory associated with the NAS in response to the call received from the NAS, if the call information is not available to the backup server.

15. A system according to claim 14, wherein said information packet requester requests the information packet from said memory if the call information is not available to the backup server.

16. A system according to claim 14, wherein said information packet forwarder further comprises:

an information packet sender associated with the NAS, for transmitting the information packet in response to a request from said information packet requester.

17. A network access server (NAS) for maintaining a call placed from a call-in user to a data communications network, the data communications network including a local server for servicing the call, and a backup server capable of servicing the call, said NAS comprising:

a receiver for receiving an information packet from the local server, the information packet associated with an ongoing call placed to the NAS by the call-in user, the information packet containing context data of the ongoing call for maintaining connection of the ongoing call;

an associated memory for storing the information packet;

a failure detector for determining if a failure of the local server has occurred; and

a sender for transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.

18. A NAS according to claim 17, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair that can be parsed into a plurality of separate data entries.

19. A NAS according to claim 17, wherein the information packet further comprises a plurality of aggregated data elements from a call attribute table.

20. A server backup system for maintaining an ongoing call placed by a call-in user to a network, the network including a server servicing the call, a network access server (NAS) coupling the call from the user to the server, and a memory associated with the NAS, said system comprising:

a backup server connected to the network, said backup server being capable of servicing the call;

an encoder associated with the server, said encoder generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call;

a sender associated with the server, said sender transmitting the information packet to the memory associated with the NAS, the memory storing the information packet;

a call coupler associated with the NAS, said call coupler rolling over the call to said backup server if the server fails;

an information packet requester associated with said backup server, for requesting the information packet from the memory associated with the NAS in response to the call received from the NAS, if the call information is not available to the backup server; and

a parser associated with said backup server, for reconstructing the call information from the information packet.

21. A server backup system according to claim 20, wherein the call information comprises server-state attribute data having an attribute/value pair that can be parsed into a plurality of separate data entries.

22. A server backup system according to claim 20, wherein the information packet further comprises a plurality of aggregated data elements from a call attribute table.

23. A server backup system according to claim 22, wherein the plurality of aggregated data elements of the information packet are separated by said parser for reconstructing the call information from said information packet.

24. A server backup system according to claim 20, wherein the server is a resource pool manager server (RPMS).

26. A server backup system according to claim 20, further comprising:

a failure detector associated with the NAS, for detecting the failure of the server.

30. A server backup system for maintaining an ongoing call placed by a call-in user to a network, the network and a failure detector connected to the network for determining whether said server access failure has occurred, said memory and said failure detector both associated with a network access server (NAS) that is connected to said network, said system comprising:

a first server connected to the network for servicing the call;

a second server connected to the network for servicing the call if the first server fails; and

a network access server (NAS) for coupling the call from the user to said first server, and coupling the call to said second server if the first server fails, said NAS including a memory associated therewith,

wherein said first server comprising:

an encoder for generating an information packet associated with an ongoing call placed the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the first server fails; and

a sender for transmitting the information packet from said encoder to the memory associated with the NAS, the memory storing the information packet, and

wherein said second server comprising:

an information packet requester for requesting the information packet from the memory in response to the call received from the NAS, if the call information is not available to the second server; and

a parser for reconstructing the call information from the information packet.

31. A server backup system according to claim 30, wherein said NAS further comprises:

a failure detector for detecting the failure of said second server.

32. A server backup system according to claim 30, wherein said first server is a resource pool manager server (RPMS) and said second server is a backup RPMS.

52. A NAS according to claim 17, wherein said sender transmits the information packet in response to a request from the backup server.

63. A method performed by a backup server for enabling a data communications network to recover from a local server failure, the data communications network including a network access server (NAS) for coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said method comprising:

receiving an information packet from the memory associated with the NAS in response to the local server failure, the information packet being associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

reconstructing the call information from the information packet so as to maintain the ongoing call to the data communications network.

64. A method according to claim 63, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said reconstructing comprising:

parsing the SSA data into a plurality of separate data entries.

65. A method according to claim 64, further comprising:

petitioning to the NAS for the information packet after the NAS requests the call information; and

sending the call information to the NAS after completing said reconstructing.

66. A method performed by a local server for enabling a data communications network to recover from a failure of said local sever, the data communications network including a backup server and a network access server (NAS), the NAS coupling a call placed from a call-in user to

the data communications network, the NAS having a memory associated therewith, said method comprising:

generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

transmitting the information packet to the memory associated with the NAS, the information packet being stored in the memory to be available to the backup server if the local server fails.

67. A method according to claim 66, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said method further comprising:

encoding a plurality of aggregated data elements from a call attribute table representing the SSA data; and

delimiting information packet into an attribute data string and a value data string.

68. A method for maintaining a call placed by a call-in user to a data communications network, the network including a network access server (NAS) for coupling the call to the network, a memory associated to the NAS, a local server servicing the call, a backup server, and a failure detector for detecting a failure of the local server, the method comprising:

generating an information packet associated with an ongoing call placed by the call-in user via the NAS, wherein the information packet containing call information of an ongoing call for maintaining connection of the call if the local server fails;

transmitting the information packet to the memory associated with the NAS, the information packet being stored in the memory;

coupling the call to the local server if the local server does not fail, and for coupling the call to the backup server if the local server fails;

transmitting the information packet from the memory associated with NAS to the backup server if the local server fails; and

reconstructing the call information from the information packet such that the backup server can recover the call context and serve the ongoing call without disconnecting the user from the network.

69. A method performed by a network access server (NAS) for maintaining a call placed from a call-in user to a data communications network, the data communications network including a local server for servicing the call, and a backup server capable of servicing the call, said method comprising:

receiving an information packet from the local server, the information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information of the ongoing call for maintaining connection of the ongoing call if the local server fails;

storing the information packet in a memory associated with the NAS;

determining if a failure of the local server has occurred; and

transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.

70. A method according to claim 69, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair that can be parsed into a plurality of separate data entries.

71. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method to be performed at a backup server for enabling a data communications network to recover from a local server failure, the data communications network including a network access server (NAS) for coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said method comprising:

receiving an information packet from the memory associated with the NAS in response to the local server failure, the information packet being associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

reconstructing the call information from the information packet so as to maintain the ongoing call to the data communications network.

72. A program storage device according to claim 71, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said reconstructing comprising:

parsing the SSA data into a plurality of separate data entries.

73. A program storage device according to claim 72, further comprising:

petitioning to the NAS for the information packet after the NAS requests the call information; and

sending the call information to the NAS after completing said reconstructing.

74. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method to be performed at a local server for enabling a data communications network to recover from a failure of said local sever, the data communications network including a backup server and a network access server (NAS), the NAS coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said method comprising:

generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

transmitting the information packet to the memory associated with the NAS, the information packet being stored in the memory to be available to the backup server if the local server fails.

75. A program storage device according to claim 74, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said method further comprising:

encoding a plurality of aggregated data elements from a call attribute table representing the SSA data; and

delimiting information packet into an attribute data string and a value data string.

76. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method to be performed at a network access server (NAS) for maintaining a call placed from a call-in user to a data communications network, the data communications network including a local server for servicing the call, and a backup server capable of servicing the call, said method comprising:

receiving an information packet from the local server, the information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information of an ongoing call for maintaining connection of the ongoing call if the local server fails;

storing the information packet in a memory associated with the NAS;

determining if a failure of the local server has occurred; and

transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.

77. A program storage device according to claim 76, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair that can be parsed into a plurality of separate data entries.

78. An apparatus for enabling a data communications network to recover from a local server failure, the data communications network including a network access server (NAS) for coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said apparatus comprising:

means for receiving an information packet from the memory associated with the NAS in response to the local server failure, the information packet being associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

means for reconstructing the call information from the information packet so as to maintain the ongoing call to the data communications network.

79. An apparatus according to claim 78, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said means for reconstructing comprising:

means for parsing the SSA data into a plurality of separate data entries.

80. An apparatus according to claim 79, further comprising:

means for petitioning to the NAS for the information packet after the NAS requests the call information; and

means for sending the call information to the NAS after completing said reconstructing.

81. An apparatus for enabling a data communications network to recover from a failure of said local sever, the data communications network including a backup server and a network access server (NAS), the NAS coupling a call placed from a call-in user to the data communications network, the NAS having a memory associated therewith, said apparatus comprising:

means for generating an information packet associated with an ongoing call placed by the call-in user via the NAS, the information packet containing call information for maintaining connection of the ongoing call if the local server fails; and

means for transmitting the information packet to the memory associated with the NAS, the information packet being stored in the memory to be available to the backup server if the local server fails.

82. An apparatus according to claim 81, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair, said apparatus further comprising:

means for encoding a plurality of aggregated data elements from a call attribute table representing the SSA data; and

means for delimiting information packet into an attribute data string and a value data string.

83. An apparatus for maintaining a call placed from a call-in user to a data communications network, the data communications network including a local server for servicing the call, and a backup server capable of servicing the call, said apparatus comprising:

means for receiving an information packet from the local server, the information packet associated with an ongoing call placed by the call-in user via said apparatus, the information packet containing call information of the ongoing call for maintaining connection of the ongoing call if the local server fails;

means for storing the information packet in a memory associated with said apparatus;

means for determining if a failure of the local server has occurred; and

means for transmitting the information packet from the associated memory to the backup server if the local server failure has occurred.

84. An apparatus according to claim 83, wherein the call information comprises server-state attribute (SSA) data having an attribute/value pair that can be parsed into a plurality of separate data entries.

85. A backup server according to claim 1, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

87. A local server according to claim 9, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

88. A system according to claim 13, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

89. A NAS according to claim 17, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

90. A server backup system according to claim 20, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

91. A server backup system according to claim 30, wherein the call information comprises at least one of:

Dialed Number Information Service (DNIS) address;

call type;

Calling Line Identification (CLID); and

service accounting information.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

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Dated: August 23, 2006

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